



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,730	12/16/2003	Moo Yeol Park	041501-5505-01	3685
9629	7590	01/11/2006	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP 1111 PENNSYLVANIA AVENUE NW WASHINGTON, DC 20004			CANNING, ANTHONY J	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,730

Applicant(s)

PARK ET AL.

Examiner

Anthony J. Canning

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 19 October 2005.

Claim Objections

2. Claims 3 and 5 are objected to because of the following informalities: claims 3 and 5 are duplicate claims. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 11, 14, and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishino et al. (U.S. 6,010,384).

5. As to claim 1, Nishino et al. disclose a method for fabricating a liquid crystal display panel, including: forming a UV sealant on either one of first and second substrates (column 5, lines 44-46); forming a liquid crystal layer between the first and second substrates (column 1, lines 25-28); attaching the first and second substrates (column 1, lines 23-25); hardening the UV sealant other than the UV sealant on the regions where the UV sealant and at least one scribing line are crossed by irradiating a UV ray on the attached substrates (column 5, lines 44-46; the

Art Unit: 2879

entire substrate is coating with UV sealant, therefore the regions with UV sealant where the UV sealant and the scribing lines don't cross will be hardened as well as the regions with the UV sealant and the scribing lines cross) with masking regions (column 5, lines 47-48; UV rays irradiate the ultraviolet curing resin to expose the desired shape) where the UV sealant and at least one scribing line are crossed (column 1, lines 34-36; column 5, lines 44-46; the ultraviolet curing resin covers the entire substrate, the scribing lines are drawn onto the substrate, therefore the UV sealant and the scribing line cross); and cutting the bonded substrates into a plurality of unit cells (column 1, lines 40-47).

6. As to claim 2, Nishino et al. disclose the method of claim 1, wherein the masking regions in the irradiating a UV ray on the attached substrates includes masking upper and lower side portions of the crossed regions between the UV sealant and the scribing line (column 5, lines 36-52; photomasks are used to expose a desired shape).

7. As to claims 3 and 5, Nishino et al. disclose the method of claim 1, wherein the masking regions in the irradiating a UV ray on the attached substrates includes masking left and right side portions of the crossed regions between the UV sealant and the scribing lines (see Fig. 5, items 102; column 7, lines 24-28; column 4, line 10).

8. As to claim 4, Nishino et al. disclose the method of claim 1, wherein the masking regions in the irradiating a UV ray on the attached substrates includes masking an active region in addition to masking upper and lower side portions of the crossed regions between the UV sealant and the scribing lines (column 5, lines.

9. As to claim 11, Nishino et al. disclose the method of claim 1, wherein the UV sealant includes one of monomer and oligomer each having both ends coupled to an acrylic group (column 5, lines 44-46; Nishino et al. disclose an acrylic resin as the UV sealant).
10. As to claim 14, Nishino et al. disclose the method of claim 1, wherein the scribing line is formed on the bonded substrates (column 7, lines 17-28).
11. As to claim 16, Nishino et al. disclose the method of claim 1, further including forming at least one column spacer on the first substrate (column 1, lines 49-53; although the second substrate is specified, the second substrate could just as easily be labeled the first substrate).
12. As to claim 17, Nishino et al. disclose the method of claim 1, wherein forming a liquid crystal layer includes dropping at least one droplet of liquid crystal onto either one of the first and second substrates (column 8, lines 50-54; because the liquid crystal material is injected droplets will be on either the first or second substrate).
13. As to claim 18, Nishino et al. disclose the method of claim 17, wherein the UV sealant is formed on the first substrate, and the at least one droplet of liquid crystal is dropped onto the second substrate (column 1, lines 49-53; column 8, lines 50-54; the spacers are formed on one substrate and then the substrates are bonded, the liquid crystal material is injected between the two of substrates; therefore liquid crystal material will be on the second substrate).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2879

having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 6-10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (U.S. 6,010,384) in view of Takahara et al. (U.S. 5,426,522).

16. As to claim 6, Nishino et al. disclose the method of claim 1. Nishino et al. fail to disclose that the main sealant is a UV setting sealant.

Takahara et al. disclose the method of fabricating a liquid crystal display including a main sealant made of an ultraviolet setting material (column 5, lines 30-33). Takahara et al. further disclose that using a ultraviolet setting sealant is preferable because when the sealant is irradiated with UV radiation, only the resin material react and the liquid crystal phase is separated from the resin phase.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the method of fabricating a liquid crystal display panel of Nishino et al. to include that the main sealant surrounding the display cell can be cured by

ultraviolet radiation, as taught by Takahara et al., for the added benefit of having only the resin material react and the liquid crystal phase is separated from the resin phase.

17. As to claim 7, Nishino et al. and Takahara et al. disclose the method of claim 6, further masking an active region inside the main sealant (column 5, lines 44-46; the ultraviolet curing resin is coated on the overall surface of the substrate; therefore, the active region will be surrounded by some ultraviolet curing resin).

18. As to claim 8, Nishino et al. and Takahara et al. disclose the method of claim 6. Nishino et al. teach that the UV sealant forms at an outside of the main sealant (column 5, lines 44-46; because the UV sealant is coated on the overall surface of the substrate, the UV sealant will be outside of the main sealant).

19. As to claim 9, Nishino et al. and Takahara et al. disclose the method of claim 6. Takahara et al. further disclose that the ultraviolet sealant includes one of monomer and oligomer each having both ends coupled to an acrylic group (column 5, lines 33-35). Takahara et al. further disclose that this sealant is preferable because when the sealant is irradiated with UV radiation, only the resin material react and the liquid crystal phase is separated from the resin phase.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the method of fabricating a liquid crystal display panel of Nishino et al. to include that the main sealant surrounding the display cell is UV curable and made of a monomer or string of monomers having ends coupled to an acrylic group, as taught by Nishino et al., for the added benefit of having only the resin material react and the liquid crystal phase is separated from the resin phase.

20. As to claim 10, Nishino et al. and Takahara et al. disclose the method of claim 6.

Takahara et al. further disclose that the main UV sealant includes one of monomer and oligomer each having one end coupled to an acrylic group and the other end coupled to an epoxy group (column 5, lines 41-49; various epoxy acrylates are give, such as 2-hydroxyethyl acrylate).

Takahara et al. further discloses that this sealant is preferable because when the sealant is irradiated with UV radiation, only the resin material react and the liquid crystal phase is separated from the resin phase.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the method of fabricating a liquid crystal display panel of Nishino et al. to include that the main sealant surrounding the display cell is UV curable and made of a monomer or string of monomers having ends coupled to an acrylic group and an epoxy, as taught by Takahara et al., for the added benefit of having only the resin material react and the liquid crystal phase is separated from the resin phase.

21. As to claim 12, Nishino et al. disclose the method of claim 1. Nishino et al. fail to disclose that the UV sealant includes one of monomer and oligomer each having one end coupled to an acrylic group and the other end coupled to an epoxy group.

Takahara et al. further disclose that the main UV sealant includes one of monomer and oligomer each having one end coupled to an acrylic group and the other end coupled to an epoxy group (column 5, lines 41-49; various epoxy acrylates are give, such as 2-hydroxyethyl acrylate). Takahara et al. further discloses that this sealant is preferable because when the sealant is irradiated with UV radiation, only the resin material react and the liquid crystal phase is separated from the resin phase.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the method of fabricating a liquid crystal display panel of Nishino et al. to include that the main sealant surrounding the display cell is UV curable and made of a monomer or string of monomers having ends coupled to an acrylic group and an epoxy, as taught by Takahara et al., for the added benefit of having only the resin material react and the liquid crystal phase is separated from the resin phase.

22. As to claim 13, Nishino et al. disclose the method of claim 1, further including heating the UV ray irradiated substrates with masking crossed regions between the UV sealant and the scribing lines (see Fig. 5, items 102, CSL-4, CSL-5, ASL-1, ASL-2; column 5, lines 47-48). Nishino et al. fail to disclose that the UV sealant includes one of monomer and oligomer each having one end coupled to an acrylic group and the other end coupled to an epoxy group.

Takahara et al. further disclose that the main UV sealant includes one of monomer and oligomer each having one end coupled to an acrylic group and the other end coupled to an epoxy group (column 5, lines 41-49; various epoxy acrylates are give, such as 2-hydroxyethyl acrylate). Takahara et al. further discloses that this sealant is preferable because when the sealant is irradiated with UV radiation, only the resin material react and the liquid crystal phase is separated from the resin phase.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the method of fabricating a liquid crystal display panel of Nishino et al. to include that the main sealant surrounding the display cell is UV curable and made of a monomer or string of monomers having ends coupled to an acrylic group and an

Art Unit: 2879

epoxy, as taught by Takahara et al., for the added benefit of having only the resin material react and the liquid crystal phase is separated from the resin phase.

23. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (U.S. 6,010,384) in view of Bergeron et al. (U.S. 5,897,414).

24. As to claim 15, Nishino et al. disclose the method of claim 1. Nishino et al. fail to disclose that the cutting the bonded substrates into a plurality of unit cells is performed by scribing and breaking simultaneously.

Bergeron et al. disclose a method of cutting a display device using a laser, which will cause a simultaneous cut and break (column 10, lines 59-61). Using a technique to simultaneously cut and break the display device leads to a quicker production of the display device.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the method of fabricating a liquid crystal display panel of Nishino et al. to include that the steps of cutting and breaking the display device is done simultaneously, as taught by Bergeron et al., for the added benefit of a more rapid production of the display device.

Prior Art

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Freer et al. (U.S. 4,255,848) disclose a method of manufacturing a liquid crystal display involving steps of cutting and breaking.

Response to Arguments

26. The examiner acknowledges the amendment to claim 1.
27. Regarding claim 1, Nishino (U.S. 6,010,384) disclose in column 5, lines 44-46 that the UV sealant is on the entire second substrate. Therefore, the UV sealant will be hardened in the regions where the scribing lines do not cross the UV sealant.

Contact Information

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning *AC*

14 December 2005

Ashok
ASHOK PATEL
PRIMARY EXAMINER